



No. 1379/31.

APPLICATION DATED

27th March, 1931.

<i>Applicant (Actual Inventor)</i> .. ..	EUSTACE ALFRED ROSS.
<i>Application and Provisional Specification</i> ..	Accepted, 14th April, 1931.
<i>Complete Specification</i> .. ..	Accepted, 9th October, 1931.
<i>Acceptance Advertised (Sec. 50)</i> .. ..	15th October, 1931.

Class 53.1.

*Drawing attached.*

21 DEC 1931

#### COMPLETE SPECIFICATION.

#### "Improvements in golf clubs."

I, EUSTACE ALFRED ROSS, of 96 Kingston Terrace, North Adelaide, State of South Australia, in the Commonwealth of Australia, Departmental Manager, hereby declare this invention and the manner in which it is to be performed, to be fully described and ascertained in and by the following statement:—

My invention relates to improvements in golf clubs, the object of the same being to construct and arrange the separable parts so as to enable a more satisfactory means to be provided and applied for joining the club to its shaft or stick.

My invention is designed with the object of effecting a secure joint between the club head and the shaft which prevents vibration from being transmitted from the club to the player, and minimises the risk of breaking the shaft at or near the point of juncture. The invention applies more particularly to that class of club in which the club is of metal and the handle is of tubular construction, manufactured from steel or its equivalent.

Hitherto with clubs of the description above indicated it has been customary to attach the shaft to the club directly without any metallic intermediate fitting, but such

devices have proved unstable in use and can only be rendered practicable by forcing a plug of metal, wood or other suitable material into the bottom end of the thin metal shaft to compensate for the rigidity which is lost by the use of a sleeve of composite material such as rubber or vulcanite.

My invention provides a separate and independent member between the club and the handle, such member being of softer material than the handle, and whilst constituting a highly satisfactory attachment element, at the same time serves to minimise vibration passing from the head of the golf club to the shaft on impact with the golf ball when playing.

My intermediate device is preferably made of copper alloy such as brass, gun metal, or of soft metallic material, or in any case, of any metallic material or alloy which is softer than the material or materials from which the club socket and shaft is made, and which is only slightly resilient, and almost completely lacking in springing qualities.

This metal element (hereinafter termed a ferrule) fits inside of the socket which is formed in the club, and the handle or shaft of the club fits into the ferrule, the

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lower part of the ferrule being externally tapered to make close contact with the socket in the club and is internally tapered to fit the external diameter of the lower end of the handle or shaft.

My invention is also a means of minimising the risk of breaking the club at or near the point of junction or union of the club head and shaft by extending the ferrule for a distance of approximately seven-eighths of an inch around the shaft and above the head, thus providing additional support round the lower portion of the shaft in the position indicated in the drawings.

Because of the fact that the shaft is contained in a soft metal ferrule as aforesaid, which extends below the lowest point of the shaft and above the highest point of the club socket, it is not possible for the top of the iron socket to come into contact with the shaft, or in any way cut or damage or weaken the shaft at or near that material point.

But in order that my invention may be better understood I will now describe the same in detail by aid of the accompanying illustrative drawings wherein:—

Fig. 1 is an external illustration of the ferrule.

Fig. 2 is an end view of Fig. 1 as viewed from the handle.

Fig. 3 is an end view of the opposite portion of the ferrule as contained in the club socket.

Fig. 4 is a sectional illustration of Fig. 1.

Fig. 5 is an illustration showing the relative positions of the socket, ferrule and handle or shaft.

In each of the illustrations similar letters of reference are used to denote similar or corresponding parts wherever they occur.

In the drawings a is the upper end of the ferrule which is external to the shaft; b is a shoulder formed on the ferrule, and c is the externally tapered end of the ferrule which is adapted to fit into the socket of the club. The internal construction of the ferrule will readily be understood upon reference to Fig. 4, the ferrule being of somewhat cylindrical or tubular formation, and having a longitudinal hole d extending from end to end thereof.

This hole is not necessarily parallel, but is preferably very slightly tapered to the same slope or angle as the hollow metal shaft or handle which is indicated at e in Fig. 5

of the drawings. The outer lower portion c is of taper or cone shaped formation to enable it to fit securely into the socket portion f<sup>1</sup> of the club f which is similarly tapered.

For greater security I insert a pin or rivet g which may be slightly burred at the ends when fitted. This pin is passed diametrically through both the socket, the ferrule, and the shaft, and will obviate any tendency to rotary movement of the associated parts when the club is put to practical use.

The shoulder b forms a firm abutment for the end of the club socket.

The method of assembly may be briefly stated as follows:—

The ferrule is turned as accurately as possible to the external diameter of the shaft and the internal diameter of the socket, but is a tight fit to both elements. The shaft does not go right through the ferrule, but will pass to within about one-quarter of an inch of the end of the ferrule.

The ferrule is placed in the socket of the club head, and by the aid of a tool, which is internally recessed to the same shape and contour as the external portion of the end a, the ferrule is forced right into the socket by applying considerable pressure laterally and circumferentially to the upper portion of the ferrule.

The shaft is then forced into the top end of the ferrule to within approximately one-eighth of an inch of the bottom end d. Alternatively, the club head ferrule and shaft may be shrunk together by heat. The whole club is then ready for use, and the non-resilient ferrule serves to eliminate or minimise vibration and shock between the club and the shaft, thereby eliminating or minimising the transmission of vibration and shock from the club to the player.

Having now fully described and ascertained my said invention and the manner in which it is to be performed, I declare that what I claim is:—

1. In improvements in golf clubs in which the club portion and the shaft portion are both made of metal but are separately constructed, an intermediate ferrule of metallic material or alloy of tubular form comprising an externally tapered portion adapted to fit into the club socket, and an internally tapered tubular portion adapted to fit closely on to the bottom of the handle or shaft.

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2. An improvement on the method of affixing metal shafts to golf club heads by the introduction between the shaft and the socket of the metallic ferrule substantially as described in Claim 1.

3. In improvements in golf clubs, the elimination or minimisation of vibration between club and shaft, and of shock on impact with the golf ball by the introduction of an element consisting of a ferrule substantially as described in Claim 1, interposed between the metal club and the metal shaft, such element being manufactured from metallic material or alloy which is softer than the metal of the club or the shaft.

4. In improvements in golf clubs, a ferrule as set out in preceding Claim 1, and further characterised by having an external shoulder adapted to serve as an abutment for the club socket.

5. In improvements in golf clubs wherein a ferrule as described in preceding Claim 1 is used, means for holding the club, shaft and ferrule together consisting of a hole

drilled diametrically through all three elements, and a pin or rivet which is accommodated in the hole and burred at its extremities.

6. In improvements in golf clubs, means of minimising the risk of breaking the shaft by extending a length of supporting metal of the ferrule around the shaft above the head of the socket.

7. In improvements in golf clubs the hereindescribed method of fixing the ferrule within the club socket which consists in applying to the socket a tool which is internally recessed to the same shape and contour as the external portion of the upper end of the ferrule, and applying pressure circumferentially thereto with a lateral movement of the tool.

Dated this 27th day of May, 1931.

EUSTACE ALFRED ROSS,

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By his Patent Attorney,

JOHN HERBERT COOKE.

Witness—Phillis Bach.

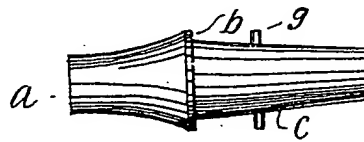


FIG 1.

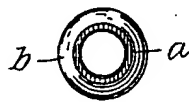


FIG 2.

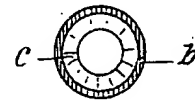


FIG 3.

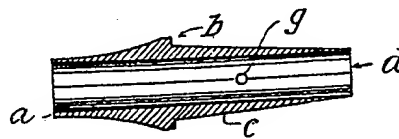


FIG 4.

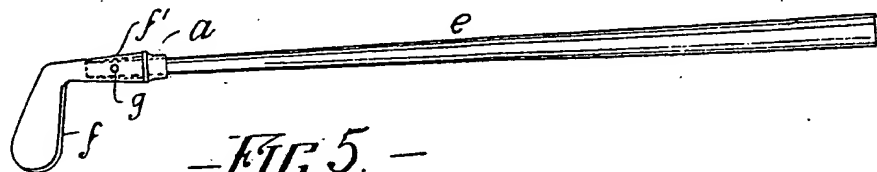


FIG 5.

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